

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

|                                   |   |                        |
|-----------------------------------|---|------------------------|
| In the Reexamination of           | ) | Examiner: G. HOLLINDEN |
| U.S. Pat. 5,558,094               | ) | Art Unit: 1211         |
| Reexam No. 90/004,656             | ) |                        |
| Issued: September 24, 1996        | ) | DECLARATION OF         |
| For: METHODS FOR USING PERSISTENT | ) | PAMELA HILPERT         |
| GASES AS ULTRASOUND CONTRAST      | ) |                        |
| MEDIA                             | ) |                        |

1. I, Pamela Hilpert, declare as follows:

**PERSONAL BACKGROUND**

2. I am a medical doctor in private practice specializing in radiology. I have been certified by the American Board of Radiology since 1987. A copy of my curriculum vitae is attached hereto as Exhibit 1.

3. In 1983, I received my Ph.D. degree in psychology from the University of Rochester in Rochester, New York and my M.D. from Albert Einstein College of Medicine in Bronx, New York, from which I graduated with distinction.

4. After graduation from medical school, I completed a one year internship in Internal Medicine at Presbyterian-University of Pennsylvania and then a three year residency in Diagnostic Imaging at Temple University Hospital. Thereafter, I served a fellowship in Cross Sectional Imaging and Intervention at the University of California San Diego Medical Center.

**BEST AVAILABLE COPY**

5. Following my fellowship at the University of California San Diego Medical Center, I began a series of faculty appointments in radiology. From 1988 to 1991, I was an Assistant Professor of Radiology at Thomas Jefferson University Hospital, Division of Diagnostic Ultrasound, Department of Radiology. From 1991 to 1993, I was an Assistant Professor of Radiology and Clinical Instructor at Pennsylvania Hospital and the Hospital of the University of Pennsylvania. From 1991 to 1992, I was a visiting Assistant Professor of Radiology at Stanford University.

6. I have also been appointed to several hospital and administrative positions, including Director of Neonatal Imaging at Pennsylvania Hospital from 1991 to 1993 and from 1989 to 1991 Associate Director of Antenatal Evaluation Center, a joint service of the Ultrasound Division of the Department of Radiology and the Department of Obstetrics and Gynecology at Thomas Jefferson Hospital.

7. As set forth in my attached curriculum vitae, my experience also includes work on granted research in the area of ultrasound imaging.

8. I also have had editorial experience with well known medical journals such as the Journal of Ultrasound, Clinical Imaging, the Journal of Interventional Radiology and Radiology Review in Medicine.

9. I have also authored and coauthored numerous published articles, papers and book chapters in the field of radiology,

including those related to work on or with ultrasound contrast agents. These include:

(a) Hilpert PL, Mattrey RF, et al, IV injection of air-filled human albumin microspheres to enhance arterial doppler signal: A preliminary study in rabbits. American Journal of Roentgenology 153:613-616, 1989;

(b) Mattrey RF, Hilpert PL, et al, Hemodynamic effects of intravenously administered lecithin-based perfluorocarbon emulsions in dogs. Critical Care Medicine 17:652-656, 1989; and

(c) a paper titled "Contrast Agents in Diagnostic Ultrasound," which was published as Chapter 3 of Volume 1 of a multi-volume text entitled, Diagnostic Ultrasound. A correct copy of that chapter, as published in 1991, is attached to this declaration as Exhibit 2. Exhibit 2 is referred to in the rest of this declaration as the "Hilpert Chapter."

**MATERIALS REVIEWED AND INFORMATION PROVIDED**

10. I have reviewed the following documents in preparation for providing this declaration:

(a) U.S. 5,501,863, titled "Contrast Media Synthesized from Polyaldehydes," issued March 26, 1996;

(b) U.S. 4,276,885, titled "Ultrasound Image Enhancement," issued July 7, 1981;

(c) U.S. 4,265,251, titled "Method of Determining Pressure Within Liquid Containing Vessel," issued on May 5, 1981;

(d) U.S. 5,147,631, titled "Porous Inorganic Ultrasound Contrast Agents," issued September 15, 1992;

(e) PCT application WO 90/01952, titled "Contrast Preparation Consisting of Cavitate- or Clathrate-Forming Host/Guest Complexes," published March 8, 1990;

(f) Lincoff et al. Intravitreal Longevity of Three Perfluorocarbon Gases, Arc. Ophthalmology, 98:1610-1611 (1980), (hereinafter "Lincoff I");

(g) Lincoff et al. Intravitreal Expansion of Perfluorocarbon Bubbles, Arch. Ophthalmology, 98:1646, (hereinafter "Lincoff II");

(h) Lincoff et al. The Perfluorocarbon Gases in the Treatment of Retinal Detachment, Ophthalmology, 90(5):546-551 (1983), (hereinafter "Lincoff III");

(i) Vygantas et al. Octafluorocyclobutane and Other Gases for Vitreous Replacement, Arch. Ophthalmology, 90:235-236 (1973), (hereinafter "Vygantas");

(j) Jacobs, P.M., Intraocular Gas Measurement Using A-Scan Ultrasound, Current Eye research, 5(8):575-578 (1986), (hereinafter "Jacobs");

(k) Nomura, et al. US Contrast Enhancement of Hepatic Tumor with Helium Gas Microbubbles: A Preliminary Report, Jpn. J. Med. Ultrasonics 18 (5): 444-445 (1991);

(l) Dupont Technical Bulletin, pp:1-11 "Freon: Technical Bulletin" in DUPONT TECHNICAL BULLETIN, (E. I. Dupont de Nemours and Co., Wilmington, Delaware, 1964); and  
(m) Dupont, pp. 1-10 "Freon Fluorocarbons: Properties and Applications" in DUPONT TECHNICAL BULLETIN, (E.I. Dupont De Nemours and Co., Wilmington, Delaware, 1987).

**THE STATE OF THE ULTRASOUND CONTRAST AGENT ART IN 1991**

11. In the Hilpert Chapter, I summarized the state of the ultrasound contrast agent art in 1991. In order to prepare the Hilpert Chapter, I studied at least 150 journal articles relating to ultrasound contrast agents. Of the journal articles I reviewed, 77 are included in the bibliography to the Hilpert Chapter.

12. My approach in preparing the Hilpert Chapter was to review and collect information which would be a complete survey of the development of then existing ultrasound contrast agents. At that time there was no ultrasound contrast agent which had been approved for commercial sale in the U.S.

13. In the Hilpert Chapter I identified five different types of agents which, in the 1991 time frame, had been recognized by researchers working on the development of ultrasound contrast agents: free gas bubbles, encapsulated gas bubbles, colloidal suspensions, lipid emulsions and aqueous solutions.

**FREE GAS BUBBLES**

14. Based on my extensive review of the literature in 1991, it is my belief that persons familiar with the state of the art of ultrasound contrast agents in 1991 would have recognized that the words "free gas" when used in conjunction with the word "bubbles" or "microbubbles" meant bubbles unassociated with solid stabilizers. Free gas bubbles (or microbubbles), as I explained in the Hilpert Chapter, are to be distinguished from encapsulated bubbles in which solid materials such as gelatin or human serum albumin had been used.

15. In 1991, persons familiar with the state of the ultrasound contrast art understood that an encapsulated bubble containing agent was an ultrasound contrast agent distinct from a free gas bubble. Such persons were aware that free gas bubbles were known to provide valuable contrast because of the gas liquid interface they provided in the body.

16. In 1991, such persons knew that free gas bubbles included those bubbles stabilized by creating the bubbles in high osmolarity or high viscosity solutions, or by using surfactants.

17. In 1991, such persons were aware of the meaning of the phrase "free gas bubble" as distinct from other contrast agents such as encapsulated gases, solid agents and liquid agents, i.e. that free gas bubbles were bubbles unassociated with solid stabilizers.

**PROBLEMS FACED BY THOSE DEVELOPING CONTRAST AGENTS IN 1991**

18. In 1991 those developing ultrasound contrast agents were aware that free gas bubbles suffered from the disadvantage of having a short lifetime once introduced into the body. As the Hilpert Chapter pointed out in 1991:

[t]he uses of free gas bubbles are limited because free bubbles are relatively large (10 to 100 $\mu$ m), short-lived, and effectively removed by the pulmonary capillary circulation. Smaller bubbles, capable of traversing the pulmonary bed (<8 $\mu$ m), have high surface tension and high internal pressure, leading to dissolution before the pulmonary bed is reached. For these reasons, free gas bubbles are only suitable for the delineation of right sided cardiac structures and intracardiac shunts." [End notes omitted, Hilpert Chapter, pp. 30-31.]

19. Such developers were also aware in 1991 that one solution to the short lifetimes of free gas bubbles was the use of encapsulants, such as human serum albumin.

20. In 1991, such developers were aware of a great need for a microbubble containing ultrasound contrast agent which could be introduced into the body by venous injection, which agent would survive long enough in the body to permit improved left-sided cardiac imaging. That need had long been recognized by those working in the field of ultrasound contrast agents. For example, the need is mentioned in papers which are cited in the bibliography of the Hilpert Chapter, such as R.S. Meltzer, E.G. Tickner and R.L. Popp, "Why Do The Lungs Clear Ultrasonic Contrast", *Ultrasound in Med. & Biol.*, vol. 6, pp. 263-269 (1980), a copy of which is attached hereto as Exhibit 3.

21. In 1991, those developing ultrasound contrast agents recognized that free gas bubbles suffered from size and stability limitations. In order to overcome such limitations, encapsulated bubbles had been proposed. At that time, an encapsulated bubble system known as Albunex was in development. In this regard the Hilpert Chapter noted that:

"[s]onication of 5% human serum albumin (Albunex, Molecular Biosystems, Inc., San Diego, California) produces a gas-filled microbubble that is small (3 to 5  $\mu$ m) and stable enough to allow free passage through the pulmonary capillary circulation. Particle concentration is high ( $4 \times 10^8$  spheres/ml). The agent is available prepackaged in ready-to-use 4 ml vials. It has a clinically useful shelf life of 6 months. Albunex has caused no clinically significant hemodynamic effect or toxicity in animal or patient studies [endnote omitted]. Following intravenous administration, the agent's microbubbles rapidly dissolve (half-life less than 1 minute), and the residual free albumin is taken up by the Kupffer cells of the liver."

Albunex includes the same bubble or microbubble as a free gas bubble or microbubble, but the bubble or microbubble is stabilized by the encapsulating albumin shell.

22. Perfluorochemicals were another recognized class of chemicals used in ultrasound contrast prior to 1991, as reported in the Hilpert chapter. At that time, it had been recognized that liquid perfluorochemicals, and particularly liquid perfluorooctylbromide (PFOB), could yield increased echogenicity due to its high density relative to surrounding tissues.

23. During the time I was preparing the Hilpert Chapter, and at all other times I have been involved in ultrasound contrast research, I have not consulted any journal relating to procedures involving the eye, as I would not expect to find any

information in such a journal relevant to improvements in ultrasound contrast agents. More specifically, one developing ultrasound contrast products in 1991 would not have considered the papers by Lincoff (I, II and/or III), Jacobs and Vygantas to be from the same technical field as that in which they were working. Further, those developing such agents in 1991 would not have referred to these documents since they are addressed to the solution of problems substantially different than those faced by those developing ultrasound contrast agents at the time.

I understand that the above statements were made with the knowledge that willful false statements and the like are punishable by fine and/or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statement may jeopardize the validity of the subject patent or any patent resulting therefrom.

Executed this 9th day of January, 1998 at Torrance, California.

  
\_\_\_\_\_  
PAMELA HILPERT

**PAMELA L. HILPERT, M.D., Ph.D.**

**CURRICULUM VITAE**

**BIRTH DATE:**

August 16, 1955

**ADDRESS:**

922 Las Lomas Ave.  
Pacific Palisades, CA 90272

**MARITAL STATUS:**

Married: 1987 to Dr. Philip J. Kellman  
Children: Julia Ann, Laura Nichole, Kimberly Fern

**EDUCATION:**

|                |  |
|----------------|--|
| COLLEGE        | Mount Holyoke College<br>B.A., Magna Cum Laude (Psychology)<br>1973-1977                               |
|                | University of Rochester<br>M.A., (Clinical Psychology)<br>1977-1979                                    |
|                | University of Rochester<br>Ph.D., (Clinical Psychology and Developmental Neurophysiology)<br>1979-1983 |
| MEDICAL SCHOOL | Albert Einstein College of Medicine<br>M.D., Degree with Distinction<br>1979-1983                      |

**PAMELA L. HILPERT, M.D., Ph.D.**

**POSTGRADUATE TRAINING:**

**Internship:**                      *Clinical Psychology*  
Rochester Mental Health Center  
Rochester, New York  
1978-1979

  Buffalo VA Hospital  
Buffalo, NY  
1979

*Internal Medicine*  
Presbyterian-University of Pennsylvania  
Medical Center  
Philadelphia, PA  
1983-1984

**Resident:**                      *Diagnostic Imaging*  
Temple University Hospital  
Philadelphia, PA  
1984-1987

**Fellowship:**                    *Cross Sectional Imaging and Intervention*  
UCSD Medical Center  
San Diego, CA  
1987-1988

**MEDICAL LICENSURE AND CERTIFICATION:**

Pennsylvania Medical License, 1986  
California Medical License, 1991  
American Board of Radiology, 1987

**FACULTY APPOINTMENTS:**

*Assistant Professor of Radiology*  
Thomas Jefferson University Hospital  
Division of Diagnostic Ultrasound, Dept. of Radiology  
1988-1991

**PAMELA L. HILPERT, M.D., Ph.D.**

**FACULTY APPOINTMENTS (Cont.):**

*Assistant Professor of Radiology and Clinical Instructor*  
Pennsylvania Hospital and the Hospital of the University of Pennsylvania  
1991-1993

*Visiting Assistant Professor of Radiology*  
Stanford University  
1991-1992

**HOSPITAL AND ADMINISTRATIVE APPOINTMENTS:**

*Radiologist*  
Woman's Breast Center, Santa Monica CA  
1993-1994

*Director of Neonatal Imaging*  
Pennsylvania Hospital  
1991-1993

*Associate Director, Antenatal Evaluation Center*  
(joint service of the Ultrasound Division of the Department of Radiology  
and the Department of Obstetrics and Gynecology at Thomas Jefferson  
University Hospital)  
1989-1991

*Clinical Privileges Committee*  
Thomas Jefferson University Hospital  
1988-1991

**HONORS AND AWARDS:**

|      |   |
|------|---|
| 1976 | Sigma Xi  |
| 1977 | Sarah Williston Scholar, Mount Holyoke College                    |
| 1985 | National Institutes of Health Medical Student Research Fellowship |
| 1986 | United Cerebral Palsy Research Fellowship                         |

PAMELA L. HILPERT, M.D., Ph.D.

**MEMBERSHIPS IN PROFESSIONAL AND SCIENTIFIC SOCIETIES:**

**National Societies:**

Radiologic Society of North America  
American Roentgen Ray Society  
American Institute of Ultrasound in Medicine  
Association of University Radiologists  
Society of Radiologists in Ultrasound

**Local Societies:**

Los Angeles County Medical Association  
Los Angeles County Women's Medical Association  
Los Angeles Radiological Society  
California Radiological Society

**EDITORIAL POSITIONS:**

Reviewer for *Journal of Interventional Radiology*, *Clinical Imaging*, *Radiology Review*,  
*Journal of Ultrasound in Medicine*.

**RESEARCH GRANTS:**

"Pressure-Flow Relationships in Canine Renal Arteries", Department of Radiology,  
Research Grant, Thomas Jefferson University Hospital. 1989.

"Methods of Increasing Needle Tip Echogenicity for Ultrasound Guided Procedures",  
Becton-Dickinson, Rutherford, NJ, 1989-1990

"Two-Dimensional Ultrasonic Imaging of the Microcirculation", National Institutes of  
Health SBIR Grant-Phase 1, B. Schrope, Ph.D., Principal Investigator, 1993-1994

"Two-Dimensional Ultrasound Imaging of the Microcirculation", National Institutes of  
Health SBIR Grant-Phase 2, B. Schrope, Ph.D., Principal Investigator, submitted

**TEACHING AND CLINICAL RESPONSIBILITIES:**

Comprehensive Breast Care, including physical examination, mammography,  
galactography, ultrasound, fine needle and core biopsy, stereotactic biopsy Ultrasound,  
with special interest in gynecological and obstetrical imaging

Non Vascular Interventional Radiology

Fetal, Pediatric, and Adult Echocardiography and Non-Invasive Vascular Diagnosis

**PAMELA L. HILPERT, M.D., Ph.D.**

**TEACHING AND CLINICAL RESPONSIBILITIES(CONT.):**

Body Computed Tomography  
Body Magnetic Resonance Imaging  
Resident Lectures, Department of Radiology and Obstetrics-Pennsylvania Hospital,  
Thomas Jefferson University Hospital, Stanford University  
Supervision of Residents and Fellows, Department of Radiology and Obstetrics and  
Gynecology-Pennsylvania Hospital  
Continuing Medical Education, Thomas Jefferson University Hospital  
Doctoral Dissertation Committees, Drexel University, Department of Biomedical  
Engineering  
Currently Involved in Technologist Training Courses in Breast Disease and Diagnosis  
and Ultrasound at Little Company of Mary Hospital (CME Credits Offered)

**PUBLICATIONS:**

1. Klorman R, Michael R, HILPERT PL, Sveen OB: A further assessment of predictors of the child's behavior in dental treatment. Journal of Dental Research 58:2338-2348, 1979.
2. Klorman R, HILPERT PL, Michael R: Effects of coping and mastery modeling on experienced and inexperienced pedodontic patients' disruptiveness. Behavior Therapy 11:156-168, 1980.
3. Winer J, HILPERT PL, Gesten E, Cowen E: An evaluation of the Rochester Kindergarten Social Problem Solving Program. Journal of Primary Prevention 2:215-226, 1982.
4. Kurtzberg D, HILPERT PL, Kreuzer J, Vaughan HG: Differential maturation of auditory cortical evoked potentials to speech sounds in normal full term and very low birth weight infants. Developmental Medicine and Child Neurology 26:466-475, 1984.
5. HILPERT PL, Freidman AC, Radecki PD, Caroline DF, Fishman EK, Meziane MA, Mitchell DG, Kressel HY: MRI of hemorrhagic renal cysts in polycystic kidney disease. American Journal of Roentgenology 146:1167-1172, 1986.
6. HILPERT PL, Freidman AC, Radecki PD, Edmonds P, Freidman AC: Primary mandibular leiomyosarcoma: CT and pathologic evaluation. Skeletal Radiology 15:570-574, 1986.
7. Caroline DF, HILPERT PL, Russin VL: CMV colitis mimicking Crohn's disease in a patient with Acquired Immune Deficiency Syndrome (AIDS). Journal of the Canadian Association of Radiologists 38:227-228, 1987.

**PAMELA L. HILPERT, M.D., Ph.D.**

**PUBLICATIONS (Cont.):**

8. HILPERT PL, Kurtz AB: Cystic neuroblastoma with metastatic disease to the liver. Radiographics 9:361-364, 1989.
9. HILPERT PL, Mattrey RF, Mitten R, Peterson T: IV injection of air-filled human albumin microspheres to enhance arterial Doppler signal: A preliminary study in rabbits. American Journal of Roentgenology 153:613-616, 1989.
10. Mattrey Rf, HILPERT PL, Long CD, Long DM, Mitten RM and Peterson T. Hemodynamic effects of intravenously administered lecithin-based perfluorocarbon emulsions in dogs. Critical Care Medicine 17:652-656, 1989
11. Wechsler RJ, Kurtz AB, Needleman L, Dick BW, Feld RI, Blum L, HILPERT PL: Pictorial essay: Cross-sectional imaging of abdominal wall hernias. American Journal of Roentology 153:517-521, 1989.
12. HILPERT PL, Kurtz AB: The role of Transvaginal Ultrasound in the second and third trimesters. Seminars in CT, US and MRI 11:59-70, 1990.
13. Mitchell DG, Schonholz L, HILPERT PL, Pennell RG, Blum L, Rifkin MD: Zones of the uterus: Discrepancy between US and MR images. Radiology 174:827-831, 1990.
14. HILPERT PL, Kurtz AB: Prenatal diagnosis of agenesis of the corpus callosum using endovaginal ultrasound. J Ultrasound in Medicine 9:363-365, 1990.
15. HILPERT PL, Goldberg BB, Kurtz AB: Amniotic band syndrome. Radiographics 10:950-953, 1990.
16. HILPERT PL: Magnetic Resonance imaging of the scrotum. Radiology Report 2:263-275, 1990.
17. Kurtz AB, Needleman L, Wapner RJ, HILPERT PL, Kuhlman K, Burns PN, Feld RI, Mitchell DG, Segal S, Blum L, Berkey H, Goldberg BB: Usefulness of a short femur in the in utero detection of skeletal dysplasias. Radiology 177:197-200, 1990.
18. Goldberg BB, HILPERT PL, Burns PN, Ji-Bin L, Newman LM, Merton DA, Witlin L: Hepatic tumor Doppler signal enhancement following intravenous injection of an ultrasound contrast agent. Radiology 177:713-717, 1990.
19. Akinbi H, Abbasi S, HILPERT PL, Bhutani VK: Gastrointestinal and renal blood flow velocity profile in neonates with birth asphyxia. Journal of Pediatrics, in press.

**PAMELA L. HILPERT, M.D., Ph.D.**

**BOOK CHAPTERS:**

1. HILPERT PL, Pretorius DP: The fetal thorax. In Nyberg D, Mahoney B, and Pretorius DP (eds). Diagnostic Ultrasound of Fetal Anomalies: Text and Atlas. Year Book Medical Publishers, Chicago, IL, 1989.
2. HILPERT PL: Contrast agents in diagnostic ultrasound. In Rumack CM, Wilson S and Charbonneau W (eds). Diagnostic Ultrasound. Year Book Medical Publishers, Chicago, IL, 1991.

**BOOKS:**

1. Freidman Ac, Radecki PD, Lev-Toaff AS, HILPERT PL, (eds): Clinical Pelvic Imaging-CT, Ultrasound, MR. C.V. Mosby Company, St. Louis, MO, 1989.

**WORKS IN PROGRESS:**

1. HILPERT PL, Hall B and Kurtz AB: Measurement of the atria of the lateral ventricles: Critical analysis of the upper limit, submitted for publication.
2. HILPERT PL, Tolosa J, Bolognese R Weiner S: The role of transvaginal ultrasound in the assessment of cervical changes in the high risk pregnancy.
3. HILPERT PL, Goldberg BB, Ji-Bin I, Newman LM, Merton DA: Enhanced renal tumor detection following intravenous ultrasound contrast agent in rabbits.
4. HILPERT PL and Abassi S: Doppler evaluation of the full term newborn's response to enteral feeding.
5. HILPERT PL, Reitherman RW and Porrath S: Atypia at fine needle aspiration biopsy and outcome at surgery.

**INVITED LECTURES:**

1. Obstetrics and Gynecology Grand Rounds. Department of Radiology, Meadowlands Hospital, Rutherford, NJ, March, 1990.
2. Advances in Ultrasound: Ultrasound Contrast Agents. Ultrasound study Day, Peterborough District Hospital, Peterborough, England, April, 1990.

**PAMELA L. HILPERT, M.D., Ph.D.**

**INVITED LECTURES (Cont.):**

3. The Fetal Thorax. Ultrasound Society of Central Pennsylvania, September, 1990.
4. Fetal Echocardiography. Ultrasound Society of Central Pennsylvania, September, 1990.
5. Update on Ultrasound Contrast Agents. Drexel University, Department of Engineering, November, 1990.
6. Extracardiac Thoracic Anomalies, The leading Edge in Diagnostic Ultrasound, May, 1990.
7. Vaginal Ultrasound: It's Use In The Second and Third Trimester, The Leading edge in Diagnostic Ultrasound, May 1990.
8. Transvaginal Ultrasound in the Second and Third Trimesters. Delaware Valley Ultrasound Society, May, 1991.
9. Ultrasound Contrast Agents: Fact and Fantasy. Section on Biomedical Engineering, The Leading Edge In Diagnostic Ultrasound, May, 1992.
10. The First Trimester Pregnancy: Normal and Abnormal, Grand Rounds in Obstetrics and Gynecology, Pennsylvania Hospital, June, 1992.
11. Neonatal Neurosonography. Neonatology Grand Rounds, Pennsylvania Hospital, September, 1992.
12. Transvaginal Imaging in Obstetrical Practice. Comprehensive Updates in Obstetrics and Gynecology, American Society of Osteopathic Obstetricians and Gynecologist, October, 1992.
13. Magnetic Resonance Imaging in Obstetrics, Grand Rounds in Obstetrics and Gynecology, Pennsylvania Hospital, November, 1992.
14. The Fetal Thorax, Genetics Grand Rounds, Pennsylvania Hospital, February, 1993.
15. The First Trimester Pregnancy: Normal and Abnormal, Department of Radiology, Olive View Hospital, May, 1994.

**PAMELA L. HILPERT, M.D., Ph.D.**

**PRESENTATIONS:**

1. Bernal G, HILPERT PL, Johnson K, Peters J, Ramey G, Seidentop D, Souweine J, Sulzer- Azaroff B: Behavior analysis - Task analysis: Optimizing reviewer skills. Association for the Advancement of Behavior Therapy, New York, NY, December 1976.
2. Ramey G, Souweine J, Peters J, Bernal G, HILPERT PL, Johnson K and Sulzer- Azaroff B: Development of guidelines for rating and preparing research articles in applied behavior analysis. Association for the advancement of Behavior Therapy, New York, NY, December 1976.
3. Reese EP, HILPERT PL, Peters G: How errorless should learning be. Some answers from pigeons and people. Association for the Advancement of Behavior Therapy, New York, NY, December 1976.
4. Klorman R, HILPERT PL, Michael R: The effects of coping and mastery modeling procedures on children's behavior during dental treatment. Society of Research in Child Development. San Francisco, CA, December 1979.
5. HILPERT PL, Friedman AC, Radecki PD, Caroline DS: Magnetic resonance imaging of hemorrhagic renal cysts in polycystic kidney disease. American Roentgen Ray Society, Washington, DC, April 1986.
6. HILPERT PL, Friedman AC, Radecki PD, Caroline DS: Magnetic resonance imaging of Hemorrhagic renal cysts in polycystic kidney disease. Pennsylvania Radiological Society, Hershey, PA, May 1987.
7. HILPERT PL, Friedman AC, Radecki PD, Caroline DS: Magnetic resonance imaging of Hemorrhagic renal cysts in polycystic kidney disease. Philadelphia Roentgen Ray Society, Philadelphia, PA, May 1987.
8. HILPERT PL, Caroline DC, Friedman AC, Dachman Ah, Bova JG: Fine transverse folds of the gastric antrum. Society of Gastrointestinal radiologists, Scottsdale, AZ, February 1987.
9. Mattrey RF, HILPERT PL, Levine D, Long CD: PFOB as a negative oral contrast agent identifies bowel: Clinical results. Association of University Radiologists, New Orleans, LA, April 1988.
10. Mattrey RM, HILPERT PL, Mitten RM, Peterson T: Color and signal Doppler enhancement of renal arterial tree following intravenous administration of ultrasound contrast agents. World Federation of Ultrasound in Medicine and Biology, Washington, DC, November 1988.

**PAMELA L. HILPERT, M.D., Ph.D.**

**PRESENTATIONS (Cont.):**

11. HILPERT PL, Casola G: Interventional radiology in ultrasound. Imaging and Interventional Radiology, San Diego, CA, February 1988.
12. HILPERT PL: Review of cases of the day. Imaging and Interventional Radiology. San Diego, CA, February 1988.
13. HILPERT PL: Review of the cases of the day. Magnetic Resonance Imaging, San Diego, CA, March 1988.
14. Kurtz AB, Needleman L, Dahnert WF, Mitchell DG, Rifkin MD, Feld RI, Wechsler RJ, HILPERT PL, Blum L, Segal S, Goldberg BB: Ultrasound case of the day. Radiologic Society of North America, Chicago, IL, November 1988.
15. Kurtz AB, Needleman L, Dahnert WF, Mitchell DG, Rifkin MD, Feld RI, Wechsler RJ, HILPERT PL, Blum L, Segal S, Goldberg BB: Ultrasound case of the day. Greater Delaware Valley Ultrasound Society, shown monthly from December 1988 to April 1989.
16. Kurtz AB, Wapner RJ, Needleman L, Berkey H, Kuhlman K, HILPERT PL, Feld R, Mitchell DG, Dahnert W, Segal S, Goldberg BB: The predictive value of a short femur in the detection of in utero skeletal dysplasias. Radiological Society of North America, Chicago, IL, November-December, 1989.
17. HILPERT PL, Goldberg BB, Ji-Bin L, Merton D: Enhanced detection of hepatomas in woodchucks following intravenous ultrasound contrast agent. Radiological Society of North America, Chicago, IL, November-December, 1989.
18. Ji-Bin L, Merton D, HILPERT PL, Goldberg BB, Burns PN: Ultrasound contrast agents. American Institute of Ultrasound in Medicine, New Orleans, LA, March, 1990.
19. Akimbi H, Abassi S, Bhutani VK, HILPERT PL: Gastrointestinal and renal blood flow profiles in neonates with birth asphyxia. The Society for Pediatric Research, May 1993.
20. HILPERT PL, Hall B and Kurtz AB: Measurement of the atria of the lateral ventricles: Critical analysis of the upper limit, Radiological Society of North America, Chicago, IL, November, 1993.
21. Lev-Toaff AS, Bach Am, Wechsler RJ, HILPERT PL, Gatalica Z, Rubin R: Biliary hematomas: Radiologic/pathologic spectrum. American Roentgen Ray Society, New Orleans, LA, April 1994.

**PAMELA L. HILPERT, M.D., Ph.D.**

**ABSTRACTS:**

1. Porath S, Reitherman RW and HILPERT PL: Outcome analysis of a radiologist-managed comprehensive breast care practice. RSNA, Chicago, IL, November 1994.
2. Porath S, Reitherman RW and HILPERT PL: Interventional procedures in patients with breast implants. RSNA, Chicago, IL, November 1994.

**COURSES TAUGHT PROVIDING AMA CME CREDIT:**

1. Review course in Obstetrics and Gynecology; Second and Third Trimester Fetus: Normal and Abnormal, Thomas Jefferson University, January 1989, 3 hours.
2. Review course in Obstetrics and Gynecology; Obstetrical Doppler, Thomas Jefferson University, February 1989, 1 hour.
3. Review course in Obstetrics and Gynecology; Practical Approach to Obstetrical Measurements, Thomas Jefferson University, February 1989, 2 hours.
4. Review course in Obstetrics and Gynecology; Endovaginal Ultrasound, Thomas Jefferson University, April 1989, 1 hour.
5. Review course in Obstetrics and Gynecology; Second and Third Trimester Fetus: Normal and Abnormal, Thomas Jefferson University, April 1989, 3 hours.
6. Applications of Magnetic Resonance Imaging in the Management of Oncology Patients. Tumor Board, Thomas Jefferson University, April 1989, 1 hour.
7. Doppler Ultrasound in Vascular Diagnosis; Obstetrical Doppler, Thomas Jefferson University, April 1989, 1 hour.
8. The Fetal Gastrointestinal Tract. The Leading Edge in Diagnostic Ultrasound, Atlantic City, NJ, May 1989.
9. Review course in Obstetrics and Gynecology; Obstetrical Doppler, Thomas Jefferson University, May 1989, 1 hour.
10. Review course in Obstetrics and Gynecology; Practical Approach to Obstetrical Measurements, Thomas Jefferson University, May 1989, 2 hours.
11. Review course in Obstetrics and Gynecology; Obstetrical Doppler, Thomas Jefferson University, June 1989, 1 hour.

**PAMELA L. HILPERT, M.D., Ph.D.**

**COURSES TAUGHT PROVIDING AMA CME CREDIT (Cont.):**

12. Review course in Obstetrics and Gynecology; Practical Approach to Obstetrical Measurements, Thomas Jefferson University, June 1989, 2 hours.
13. Review course in Obstetrics and Gynecology; Second and Third Trimester Fetus, Thomas Jefferson University, August 1989, 3 hours.
14. Review course in Obstetrics and Gynecology; The Fetal Gastrointestinal System, Thomas Jefferson University, August 1989, 1 hour.
15. Review course in Obstetrics and Gynecology; Second and Third Trimester Fetus, Thomas Jefferson University, September 1989, 3 hours.
16. In-Service for Division of Diagnostic Ultrasound; The Fetal Thorax, Thomas Jefferson University, September 1989, 1 hour.
17. In-Service for Division of Diagnostic Ultrasound; an Update on Measurements of the Fetal Ventricular System, Thomas Jefferson University, September 1989, 1 hour.
18. Review course in Obstetrics and Gynecology; Obstetrical Doppler, Thomas Jefferson University, October 1989, 1 hour.
19. Review course in Obstetrics and Gynecology; Practical Approach to Obstetrical Measurements, Thomas Jefferson University, October 1989, 2 hours.

**COURSES TAUGHT PROVIDING AMA CONTINUING EDUCATION CREDIT:**

20. Update on Ultrasound Contrast Agents, Drexel University, Department of Engineering, November 1989.
21. Review course in Obstetrics and Gynecology; First Trimester Obstetrical Ultrasound - Normal and Abnormal, Thomas Jefferson University, December 1989, 1.5 hours.
22. Review course in Obstetrics and Gynecology; Endovaginal Ultrasound, December 1989, 1.5 hours.
23. Review course in Obstetrics and Gynecology; Second and Third Trimester Fetus: Normal and Abnormal, Thomas Jefferson University, January 1990, 3.25 hours.

**PAMELA L. HILPERT, M.D., Ph.D.**

24. Review course in Obstetrics and Gynecology; Practical Approach to OB Measurements, Thomas Jefferson University, March 1990, 2 hours.

**COURSES TAUGHT PROVIDING AMA CONTINUING EDUCATION CREDIT(CONT.):**

25. Review course in Obstetrics and Gynecology; OB Doppler, Thomas Jefferson University, March 1990, 1 hour.
26. Doppler Ultrasound in Vascular Diagnosis; Doppler in Obstetrics, Thomas Jefferson University, March 1990, 1 hour.
27. Review course in Obstetrics and Gynecology; Second and Third Trimester Fetus: Normal and Abnormal, Thomas Jefferson University, May 1990, 3 hours.
28. Invasive Ultrasound: Techniques and Procedures, The Leading Edge in Diagnosis Ultrasound, Atlantic City, NJ, May 1990.
29. Extracardiac Thoracic Anomalies, The Leading Edge in Diagnostic Ultrasound, Atlantic City, NJ, May 1990.
30. Vaginal Ultrasound: Its use in The Second and Third Trimester, The Leading Edge in Diagnostic Ultrasound, Atlantic City, NJ, May 1990.
31. Review course in Obstetrics and Gynecology; Second and Third Trimester Fetus: Normal and Abnormal, Thomas Jefferson University, June 1990, 3 hours.
32. Review course in Obstetrics and Gynecology; Second and Third Trimester Fetus: Normal and Abnormal, Thomas Jefferson University, June 1990, 3 hours.

**COURSES TAUGHT PROVIDING AMA CME CREDIT:**

33. Review course in Obstetrics and Gynecology; Second and Third Trimester Fetus: Normal and Abnormal, Thomas Jefferson University, January 1991, 3 hours.
34. Doppler Ultrasound in Vascular Diagnosis; Doppler in Obstetrics, Thomas Jefferson University, July 1990, 1 hour.